Richmond Refinery LPS Bulletin –Reliability

Trico Oilers Missing Overflow Holes (9/1/2011)

IMPACT ERM:
NL# 21204 Inv# 12409

Location: Hydroprocessing, Rotating Equip Reliability (RER)

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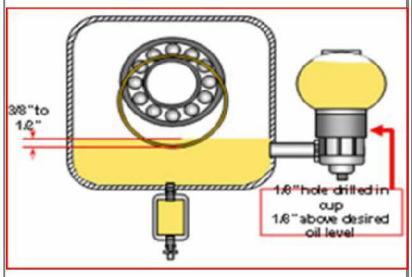


Trico Oiler and Slinger Ring

Additional information is found in a *Trico Oiler Basics* training presentation found at the Refinery Lubrication Resources website: http://www.ric841.chevron.net/reliability/Reliability/IMI/Lubrication%20Resources/Refinery%20Lubrication%20Resources.asp

Tenets of Operations Violated:

1) 06-Maintain integrity of dedicated systems
2) 08-Address abnormal conditions

IIF -- Every Task, The Right Way, Every Time

Incident Description:

Chevron Machinists working at Hydroprocessing recently discovered high oil levels in bearing housings on machinery connected to oil mist systems and equipped with Trico brand constant level oilers.

The machinists recognized the risk of stalling or slowing rotation of the oil ring(s) in the bearing housings due to high oil level. Oil rings sling oil to the ball, roller or sleeve bearings inside the bearing housing and high oil level can cause lack of lubrication in certain cases.

Most machines in process plants in Richmond are connected to oil mist systems which provide a beneficial oil/air mist that provides a purge to prevent atmospheric contaminants such as dust and moisture from entering the bearing housing on bearings in service and on standby.

Investigation Findings:

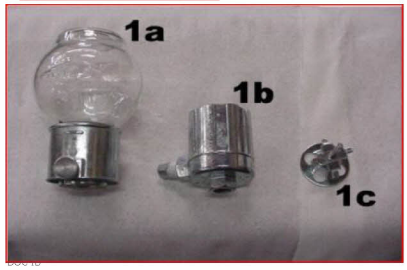
1) If the Trico oiler is not modified to have an overflow hole, the oil added by the mist can eventually cause a high oil level in the bearing housing, which is a reliability risk.

Lessons Learned:

1) Oil mist adds oil at low rates to bearing housings. However, Trico oiler cups do not come from the factory with an overflow hole.
2) Machinists drill or punch the overflow hole in the Trico cup 1/8" above the desired oil level, specific to each bearing housing.

Trico Opto-Matic Oiler

At Richmond we use the standard self-vented Trico Opto-Matic oiler shown at left and below. Trico Opto-Matic oilers are piped to bearing housings to maintain a constant oil level. The oil is gravity fed from the bottle neck, out the mouth and through a short pipe to the bearing housing. As level drops below the mouth of the bottle, oil flows into the cup and to the bearing housing. Oil level is set by the elevation of the mouth of the cup. The mouth sits on a pair of threaded supports (star adjusters) which can be adjusted up and down and locked in position. Once the mouth opening is submerged, oil flow stops.



1a- Glass bottle reservoir with neck and outer collar

1b Cup – feeds oil to housing, contains supports 1c

1c Star Level Adjuster – threaded to adjust height of reservoir- supports and sets level of 1a

Recommendations for machinery connected to oil mist:

1) Add overflow holes to Trico Oilers if they don't already exist.
2) When oil is added, check Trico oilers have overflow holes.